Remarks

The Office Action mailed May 4, 2007 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-23 are now pending in this application. Claims 1-23 stand rejected.

Initially, Applicants respectfully submit that, on Page 1 of the Office Action, the drawings submitted October 10, 2003, are neither accepted nor objected to. As such, Applicants respectfully request that Examiner acknowledge acceptance of the formal drawings submitted October 10, 2003.

Applicants and the undersigned wish to thank Examiner Ramirez for the courtesies he extended in a telephonic conversation with Melissa Glauber on August 24, 2007. The Examiner clarified that, although on page 2 of the Office Action Claims 1-17, 36, and 37 are rejected under 35 U.S.C. § 101, Claims 1-23 are actually rejected under Section 101 as being directed to non-statutory subject matter, as asserted on page 5 of the Office Action.

The rejection of Claims 1-23 under 35 U.S.C. § 101 as being directed to non-statutory subject matter is respectfully traversed.

The Examiner asserts beginning at page 5 of the Office Action that the recitations of Claims 1, 12, 21, and 22 that "there is no transformation nor does the claim produce a useful, concrete, and tangible result." Applicants respectfully traverse this assertion, and submit that the claims of the present patent application, as amended, are directed to practical applications in the technological arts. "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." 35 U.S.C. § 101. "Any sequence of operational steps can constitute a process within the meaning of the Patent Act so long as it is part of the technological arts." In re Musgrave, 431 F.2d 882 (CCPA 1970).

More specifically, Applicants traverse the assertion on page 3 of the Office Action that "[g]rouping equivalent dipoles based on a predetermined criterion and solving inverse problems clearly do no transform an article of physical object to a different state or thing." The presently pending claims do not recite that equivalent dipoles are grouped based on a predetermined criterion and solving inverse problems.

Applicants also traverse the assertions on page 4 of the Office Action that "the claim does not provide a useful result in that the claim does not actually solve a problem. It does not appear to be specific as to how the problem is solved and, if solved it is not specific as to the use of this solution," and that "the claim clearly does not provide a practical application. The problem, even if solved, is not practically applied to produce a real world result." Applicants respectfully submit that the currently pending claims are directed to analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles by aligning and averaging images to produce a single representative frame of image data. As such, the current claims provide a specific solution to a problem. Applicants also submit that aligning and averaging images to produce a single representative frame of image data is a practical application with a real world result.

Nonetheless, in order to expedite prosecution, Applicants have amended independent Claim 1 to recite a method for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles, wherein the method utilizes a computer to "align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cardiac cycles . . . and produce a single representative frame of image data based on the aligned and averaged frames of imaging data." Applicants respectfully submit that utilizing a computer to produce a single representative frame of image data is a useful process that is considered to be within "the technological arts."

Accordingly, for at least the reasons set forth above, Applicants submit that Claim 1, as amended, satisfies the requirements of 35 U.S.C. § 101.

Claims 2-11 depend, directly or indirectly, from independent Claim 1. When the recitations of Claims 2-11 are considered in combination with the recitations of

Claim 1, Applicants submit that dependent Claims 2-11 likewise satisfy the requirements of Section 101.

Furthermore, in order to expedite prosecution, Applicants have amended independent Claim 12 to recite a cardiology analysis apparatus that includes computer configured to "align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cardiac cycles . . . and produce a single representative frame of image data based on the aligned and averaged frames of imaging data." Applicants respectfully submit that a cardiology analysis apparatus that includes computer configured to produce a single representative frame of image data is a useful machine that is considered to be within "the technological arts."

Accordingly, for at least the reasons set forth above, Applicants submit that Claim 12, as amended, satisfies the requirements of 35 U.S.C. § 101.

Claims 13-21 depend, directly or indirectly, from independent Claim 12. When the recitations of Claims 13-21 are considered in combination with the recitations of Claim 12, Applicants submit that dependent Claims 13-21 likewise satisfy the requirements of Section 101.

Moreover, in order to expedite prosecution, Applicants have amended independent Claim 22 to recite a method for analyzing stored frames of time-stamped cyclical image data obtained during a study of an object during a plurality of cycle, wherein the method utilizes a computer to "align and average the selected images corresponding to the selected phase across the plurality of cycles . . . and produce a single representative frame of image data based on the aligned and averaged frames of imaging data." Applicants respectfully submit that utilizing a computer to produce a single representative frame of image data is a useful process that is considered to be within "the technological arts."

Accordingly, for at least the reasons set forth above, Applicants submit that Claim 22, as amended, satisfies the requirements of 35 U.S.C. § 101.

In addition, in order to expedite prosecution, Applicants have amended independent Claim 23 to recite an analysis apparatus including a computer configured to "align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cycles . . . and produce a single representative frame of image data using the aligned and averaged frames of imaging data." Applicants respectfully submit that an analysis apparatus including a computer configured to produce a single representative frame of image data is a useful machine that is considered to be within "the technological arts."

Accordingly, for at least the reasons set forth above, Applicants submit that Claim 23, as amended, satisfies the requirements of 35 U.S.C. § 101.

For at least the reasons set forth above, Applicants respectfully request that the Section 101 rejection of Claims 1-23 be withdrawn.

The rejection of Claims 1-23 under 35 U.S.C. § 112, second paragraph, as being indefinite is respectfully traversed.

The Office Action on page 6 asserts that "[i]n Claims 1, 12, 22 and 23, it is unclear as to how is [*sic*] determine the times of a selected phase in the plurality of cardiac cycles."

Claims 1 recites utilizing a computer to "analyze the stored time-stamped physiologic data to determine times of a selected phase in the plurality of cardiac cycles." Claim 12 recites a computer configured to "analyze the stored time-stamped physiologic data to determine times of a selected phase in the plurality of cardiac cycles." Claim 22 recites utilizing a computer to "analyze the stored time-stamped cyclical image data to determine time of a selected phase of the cycle." Claim 23 recites a computer configured to "analyze the stored time-stamped waveform data to determine times of a selected phase in the plurality of cycles."

The recitations of the aforementioned independent claims are described in the specification at paragraph 24, lines 4-8, for example. More specifically, the specification recites at paragraph 24:

> [s]uch analysis requires the selection of images acquired substantially in synchronization with certain cardiac events of interest. This selection could be accomplished by selecting frames of imaging data having a time stamp closest in time to time-stamped pointers corresponding to particular cardiac events.

As such, in contrast to the Examiner's assertion, one of ordinary skill in the art would understand that one way to determine times of a selected phase in the plurality of cardiac cycles is by selecting frames of imaging data having a time stamp closest in time to time-stamped pointers corresponding to particular cardiac events.

Furthermore, the Office Action at page 6 asserts that "it is also unclear as to how is [*sic*] align and average images corresponding to the selected phase across the plurality of cardiac cycles to produce a single frame of image data."

Claims 1 recites utilizing a computer to "align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cardiac cycles." Claim 12 recites a computer configured to "align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cardiac cycles." Claim 22 recites utilizing a computer to "align and average the selected images corresponding to the selected phase across the plurality of cycles." Claim 23 recites a computer configured to "align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cycles."

The recitations of the aforementioned independent claims are described in the specification at paragraph 36, lines 1-4, for example. More specifically, the specification recites at paragraph 36:

> [f]or the plurality of selected systolic images, the images are aligned with one another at 110 utilizing a alignment software module and averaged at 112 utilizing an averaging software module to produce a single representative systolic image.

As such, in contrast to the Examiner's assertion, one of ordinary skill in the art will understand that one way to align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cardiac cycles is by utilizing an alignment software module and utilizing an averaging software module.

For at least the reasons set forth above, Applicants submit that Claims 1, 12, 22, and 23 satisfy the requirements of 35 U.S.C. § 112, second paragraph.

Claims 2-11 depend, directly or indirectly, from independent Claim 1. When the recitations of Claims 2-11 are considered in combination with the recitations of

Claim 1, Applicants submit that dependent Claims 2-11 likewise satisfy the requirements of Section 112, second paragraph.

Claims 13-21 depend, directly or indirectly, from independent Claim 12. When the recitations of Claims 13-21 are considered in combination with the recitations of Claim 12, Applicants submit that dependent Claims 13-21 likewise satisfy the requirements of Section 112, second paragraph.

For at least the reasons set forth above, Applicants respectfully request that the Section 112, second paragraph, rejection of Claims 1-23 be withdrawn.

The rejection of Claims 1, 8-12, and 19-23 under 35 U.S.C. § 102(b) as being anticipated by Christiaens et al. ("CG-Based Selection of Angiographic Images using DICOM Facilities") (hereinafter referred to as "Christiaens") is respectfully traversed.

Christiaens describes a method for quasi-automatically selecting angiographic images using Digital Imaging and Communications in Medicine (DICOM) facilities. The method includes retrieving required data from a DICOM file. The retrieved data includes image data, electrocardiogram (EGC) data, projection angles, patient name and number, a study date, a frame rate, and a sampling rate. The EGC data is processed to detect R-peaks in the retrieved EGC signal. The image data includes a sequence of images. Images recorded approximately at the moment an R-peak occurred are selected out of the image sequence using the synchronization properties between the image sequence and the ECG sequence. The selected images are then displayed. Notably, Christiaens does not describe nor suggest that the retrieved data includes time-stamped imaging data or time-stamped physiologic data. Furthermore, Christiaens does not describe nor suggest utilizing a computer to select, in a plurality of cardiac cycles, stored frames of time-stamped imaging data corresponding to determined times of a selected phase.

Claim 1 recites a method for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles, said imaging data comprising frames representative of a succession of images of the patient's heart, said method comprising utilizing a computer to "analyze the stored time-stamped physiologic data to determine times of a selected phase in the plurality of cardiac cycles; select, in the plurality of cardiac cycles, the stored frames of time-stamped imaging data corresponding to the determined times of the selected phase; align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cardiac cycles; and produce a single representative frame of image data based on the aligned and averaged frames of imaging data."

Christiaens does not describe nor suggest a method for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles as recited in Claim 1. More specifically, Christiaens does not describe nor suggest utilizing a computer to select, in a plurality of cardiac cycles, stored frames of time-stamped imaging data corresponding to determined times of a selected phase. Further, Christiaens does not describe nor suggest utilizing a computer to align and average selected frames of imaging data corresponding to a selected phase across a plurality of cardiac cycles. Moreover, Christiaens does not describe nor suggest utilizing a computer to produce a single representative frame of image data based on aligned and averaged frames of imaging data. Rather, Christiaens describes a method for quasi-automatically selecting angiographic images by selecting images recorded approximately at the moment a detected R-peak occurred using the synchronization properties between a retrieved image sequence and a retrieved ECG sequence.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Christiaens.

Claims 8-11 depend, directly or indirectly, from independent Claim 1. When the recitations of Claims 8-11 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 8-11 likewise are patentable over Christiaens.

Claim 12 recites a cardiology analysis apparatus for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles, said imaging data comprising frames representative of a succession of images of the patient's heart, said apparatus having a computer configured to "analyze the stored time-stamped physiologic data to determine times of a selected phase in the plurality of cardiac cycles; select, in the plurality of cardiac cycles, the stored frames of time-stamped imaging data corresponding to the determined times of the selected phase; align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cardiac cycles; and produce a single representative frame of image data based on the aligned and averaged frames of imaging data."

Christiaens does not describe nor suggest a cardiology analysis apparatus for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles as recited in Claim 12. More specifically, Christiaens does not describe nor suggest a cardiology analysis apparatus that includes a computer that selects, in a plurality of cardiac cycles, stored frames of time-stamped imaging data corresponding to determined times of a selected phase. Furthermore, Christiaens does not describe nor suggest a cardiology analysis apparatus that includes a computer that aligns and averages selected frames of imaging data corresponding to a selected phase across a plurality of cardiac cycles. Moreover, Christiaens does not describe nor suggest a cardiology analysis apparatus that includes a computer that produces a single representative frame of image data based on aligned and averaged frames of imaging data. Rather, Christiaens describes a method for quasi-automatically selecting angiographic images by selecting images recorded approximately at the moment a detected R-peak occurred using the synchronization properties between a retrieved image sequence and a retrieved ECG sequence.

Accordingly, for at least the reasons set forth above, Claim 12 is submitted to be patentable over Christiaens.

Claims 19-21 depend from independent Claim 12. When the recitations of Claims 19-21 are considered in combination with the recitations of Claim 12, Applicants submit that dependent Claims 19-21 likewise are patentable over Christiaens.

Claim 22 recites a method for analyzing stored frames of time-stamped cyclical image data obtained during a study of an object during a plurality of cycles, said method comprising utilizing a computer to "analyze the stored time-stamped cyclical image data to determine time of a selected phase of the cycle; select, in the plurality of cycles of time-stamped cyclical image data, stored images corresponding to the determined times of the selected phase; align and average the selected images corresponding to the selected phase across the plurality of cycles; and produce a single representative frame of image data based on the aligned and averaged frames of imaging data."

Christiaens does not describe nor suggest a method for analyzing stored frames of time-stamped cyclical image data obtained during a study of an object during a plurality of cycles as recited in Claim 22. More specifically, Christiaens does not describe nor suggest utilizing a computer to select, in a plurality of cycles of time-stamped cyclical image data, stored images corresponding to determined times of a selected phase. Furthermore, Christiaens does not describe nor suggest utilizing a computer to align and average selected images corresponding to a selected phase across a plurality of cycles. Moreover, Christiaens does not describe nor suggest utilizing a computer to produce a single representative frame of image data based on aligned and averaged frames of imaging data. Rather, Christiaens describes a method for quasi-automatically selecting angiographic images by selecting images recorded approximately at the moment a detected R-peak occurred using the synchronization properties between a retrieved image sequence and a retrieved ECG sequence.

Accordingly, for at least the reasons set forth above, Claim 22 is submitted to be patentable over Christiaens.

Claim 23 recites an analysis apparatus for analyzing stored frames of time-stamped cyclical imaging data and time-stamped waveform data obtained during a study of an object during a plurality of cycles, said imaging data comprising frames representative of a succession of images of the object, said apparatus having a computer configured to "analyze the stored time-stamped waveform data to determine times of a selected phase in the plurality of cycles; select, in the plurality of cycles, stored frames of time-stamped cyclical imaging data corresponding to the determined times of the selected phase; align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cycles; and produce a single representative frame of image data using the aligned and averaged frames of imaging data."

Christiaens does not describe nor suggest an analysis apparatus for analyzing stored frames of time-stamped cyclical imaging data and time-stamped waveform data obtained during a study of an object during a plurality of cycles as recited in Claim 23. More specifically, Christiaens does not describe nor suggest an analysis apparatus that includes a computer that selects, in a plurality of cycles, stored frames of time-stamped cyclical imaging data corresponding to determined times of a selected phase. Furthermore, Christiaens does not describe nor suggest an analysis apparatus that includes a computer that aligns and averages selected frames of imaging data corresponding to a selected phase across a plurality of cycles. Moreover, Christiaens does not describe nor suggest an analysis apparatus that includes a computer that produces a single representative frame of image data using aligned and averaged frames of imaging data. Rather, Christiaens describes a method for quasi-automatically selecting angiographic images by selecting images recorded approximately at the moment a detected R-peak occurred using the synchronization properties between a retrieved image sequence and a retrieved ECG sequence.

Accordingly, for at least the reasons set forth above, Claim 23 is submitted to be patentable over Christiaens.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 11, 8-12, and 19-23 be withdrawn.

The rejection of Claims 2-7 and 13-18 under 35 U.S.C. § 103(a) as being unpatentable over Christiaens in view of Manning et al. (U.S. Pat. No. 6,501,979) (hereinafter referred to as "Manning") and Ossmann et al. (U.S. Pub. No. 2004/0092816) (hereinafter referred to as "Ossmann") is respectfully traversed.

Christiaens is described above. Manning describes a medical imaging method that includes gating the acquisition of imaging data using a synchronization signal. More specifically, electrocardiogram (ECG) signals (30 and 63) representing the electrocardiogram of a subject (7) placed in an examination zone of a medical imaging apparatus (1) and peripheral pulse (PPU) signals (30 and 66) representing occurrences of peripheral pulses in the subject (7) are obtained. Using the ECG and PPU signals (30, 63, and 66), one or more synchronization signals (42, 42', 43, 43', and 72) representing occurrences of one or more pre-determined phases of the cyclic movements of the heart are generated (71). The medical imaging apparatus (1) is controlled (73) based on the synchronization signals (42, 42', 43, 43', and 72) in order to collect imaging data at a pre-determined cardiac phase. As such, the ECG and PPU signals (30, 63, and 66) are used to trigger (54 and 73) the collection of imaging data. Notably, Manning does not describe nor suggest utilizing a computer to select, in a plurality of cardiac cycles, stored frames of time-stamped imaging data corresponding to determined times of a selected phase.

Ossmann describes a method for anatomical imaging, wherein image data are acquired in synchronism with corresponding physiological cycles of a subject. An electrocardiogram (ECG) waveform of the patient is used to trigger image data acquisition such that data acquisition is synchronized to a specific phase of the subject's cardiac cycle. More specifically, an image volume is divided into volume segments (VS1-VS9). Image data for each volume segment (VS1-VS9) is acquired during a cardiac cycle (CC1-CC9), wherein each cardiac cycle (CC1-CC9) includes a plurality of cardiac phases (CP1-CP12). As such, imaging data for each volume segment (VS1-VS9) includes data for each cardiac phase (CP1-CP12) of a cardiac cycle (CC1-CC9). The acquired image data is organized and combined such that data from each volume segment (VS1-VS9) during each cardiac cycle (CC1-CC9) is used to form an image at a cardiac phase (CP1-CP12). Notably, Ossmann does not describe nor suggest utilizing a computer to select, in a plurality of cardiac cycles, stored frames of time-stamped imaging data corresponding to determined times of a selected phase.

Claim 1 recites a method for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles, said imaging data comprising frames representative of a succession of images of the patient's heart, said method comprising utilizing a computer to "analyze the stored time-stamped physiologic data to determine times of a selected phase in the plurality of cardiac cycles; select, in the plurality of cardiac cycles, the stored frames of time-stamped imaging data corresponding to the determined times of the selected phase; align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cardiac cycles; and produce a single representative frame of image data based on the aligned and averaged frames of imaging data."

None of Christiaens, Manning, and Ossmann, considered alone or in combination, describe nor suggest a method for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles as recited in Claim 1. More specifically, none of Christiaens, Manning, and Ossmann, considered alone or in combination, describe nor suggest utilizing a computer to select, in a plurality of cardiac cycles, stored frames of time-stamped imaging data corresponding to determined times of a selected phase. Furthermore, none of Christiaens, Manning, and Ossmann, considered alone or in combination, describe nor suggest utilizing a computer to align and average selected frames of imaging data corresponding to a selected phase across a plurality of cardiac cycles. Moreover, none of Christiaens, Manning, and Ossmann, considered alone or in combination, describe nor suggest utilizing a computer to produce a single representative frame of image data based on aligned and averaged frames of imaging data.

Rather, Christiaens describes a method for quasi-automatically selecting angiographic images by selecting images recorded approximately at the moment a detected R-peak occurred using the synchronization properties between a retrieved image sequence and a retrieved ECG sequence, Manning describes a method for gating the acquisition of imaging data using ECG and PPU to trigger collection of the imaging data, and Ossmann describes a method that includes acquiring image data in synchronism with corresponding physiological cycles of a subject by using an ECG waveform to trigger data acquisition.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Christiaens in view of Manning and Ossmann.

Claims 2-7 depend, directly or indirectly, from independent Claim 1. When the recitations of Claims 2-7 are considered in combination with the recitations of

Claim 1, Applicants submit that dependent Claims 2-7 likewise are patentable over Christiaens in view of Manning and Ossmann.

Claim 12 recites a cardiology analysis apparatus for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles, said imaging data comprising frames representative of a succession of images of the patient's heart, said apparatus having a computer configured to "analyze the stored time-stamped physiologic data to determine times of a selected phase in the plurality of cardiac cycles; select, in the plurality of cardiac cycles, the stored frames of time-stamped imaging data corresponding to the determined times of the selected phase; align and average the selected frames of imaging data corresponding to the selected phase across the plurality of cardiac cycles; and produce a single representative frame of image data based on the aligned and averaged frames of imaging data."

None of Christiaens, Manning, and Ossmann, considered alone or in combination, describe nor suggest a cardiology analysis apparatus for analyzing stored frames of time-stamped imaging data and time-stamped physiologic data obtained during a study of a patient during a plurality of cardiac cycles as recited in Claim 12. More specifically, none of Christiaens, Manning, and Ossmann, considered alone or in combination, describe nor suggest a cardiology analysis apparatus that includes a computer that selects, in a plurality of cardiac cycles, stored frames of time-stamped imaging data corresponding to determined times of a selected phase. Furthermore, none of Christiaens, Manning, and Ossmann, considered alone or in combination, describe nor suggest a cardiology analysis apparatus that includes a computer that aligns and averages selected frames of imaging data corresponding to a selected phase across a plurality of cardiac cycles. Moreover, none of Christiaens, Manning, and Ossmann, considered alone or in combination, describe nor suggest a cardiology analysis apparatus that includes a computer that produces a single representative frame of image data based on aligned and averaged frames of imaging data.

Rather, Christiaens describes a method for quasi-automatically selecting angiographic images by selecting images recorded approximately at the moment a detected R-peak occurred using the synchronization properties between a retrieved image sequence and a retrieved ECG sequence, Manning describes a method for gating the acquisition of imaging data using ECG and PPU to trigger collection of the imaging data, and Ossmann describes a method that includes acquiring image data in synchronism with corresponding physiological cycles of a subject by using an ECG waveform to trigger data acquisition.

Accordingly, for at least the reasons set forth above, Claim 12 is submitted to be patentable over Christiaens in view of Manning and Ossmann.

Claims 13-18 depend, directly or indirectly, from independent Claim 12. When the recitations of Claims 13-18 are considered in combination with the recitations of Claim 12, Applicants submit that dependent Claims 13-18 likewise are patentable over Christiaens in view of Manning and Ossmann.

Moreover, in contrast to the assertions in the Office Action, Applicants respectfully submit that it would not have been obvious to one skilled in the art to combine the teachings of Manning and Ossmann with the teachings of Christiaens to arrive at the present invention. More specifically, Applicants submit that Manning and Ossmann teach away from the present invention. If art "teaches away" from a claimed invention, such a teaching supports the nonobviousness of the invention. U.S. v. Adams, 148 USPQ 479 (1966); Gillette Co. v. S.C. Johnson & Son, Inc., 16 USPQ2d 1923, 1927 (Fed. Cir. 1990). In light of this standard, it is respectfully submitted that the cited art, as a whole, is not suggestive of the presently claimed invention. Specifically, Manning is directed to acquiring imaging data based on ECG and PPU signals, and more specifically describes that *imaging data is acquired* based on the ECG and PPU signals. Accordingly the method described in Manning does not use the ECG and PPU signals to *analyze stored frames of imaging data* after the imaging data is acquired (emphasis added). As such, Manning teaches away from selecting, in a plurality of cardiac cycles, stored frames of time-stamped imaging data corresponding to determined times of a selected phase.

Furthermore, Ossmann is directed to acquiring image data in synchronism with corresponding physiological cycles of a subject by using an ECG waveform to trigger data acquisition. Because Ossmann describes that imaging *data is acquired* based physiological cycles, the method in Ossmann does not use the physiological cycles to *analyze stored frames of imaging data* after the imaging data is acquired (emphasis added). As such, Ossmann teaches away from selecting, in a plurality of cardiac cycles, stored frames of time-stamped imaging data corresponding to determined times of a selected phase. Accordingly, Applicants respectfully submit that the cited art as a whole teaches away from the methods and apparatus as recited.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 2-7 and 13-18 be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully submitted,

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